

IN THE CLAIMS:

Please cancel claims 1-23, and replace them with new claims 24-43.

1-23. (Canceled).

24. (NEW) A method of forming electroplated solder on an organic circuit board for making flip chip joints and board to board solder joints, comprising:
providing an organic circuit board including a surface bearing electrical circuitry that includes at least a contact pad;
forming a solder mask layer on said surface, said solder mask being patterned to expose said contact pad;
forming a thin metal seed layer over said surface, said seed layer being solely made of a first metal material;
forming a resist layer with at least one opening located at said contact pad that is deposited over said seed layer;
forming a solder bump in said opening by electroplating, said solder bump containing at least said first metal material; and
removing said resist layer and said seed layer beneath said resist layer;
wherein said seed layer beneath said solder bump dissolves completely into said solder bump after a reflow process, and disappears.

25. (NEW) The method of claim 24, wherein said first metal material is selected from a group consisting of copper and tin.

26. (NEW) The method of claim 24, wherein said seed layer has a thickness less than 0.005 millimeter.

27. (NEW) The method of claim 24, wherein said seed layer is made of physical vapor deposition method.

28. (NEW) The method of claim 24, wherein said seed layer is made of chemical vapor deposition method.

29. (NEW) The method of claim 24, wherein said seed layer is made of electroless plating method.
30. (NEW) The method of claim 29, further comprising a step before forming said thin metal seed layer:
coating the surfaces of the solder mask and the contact pad with aqueous solutions which at least contains copper ions and then performing a reduction process of said copper ions to form a thin copper film on said surfaces, wherein there is no reduction of noble metal ions.
31. (NEW) The method of claim 30, wherein said noble metal is selected from a group consisting of palladium, gold and silver.
32. (NEW) The method of claim 24, further comprising a step before forming said thin metal seed layer:
forming a barrier layer on said contact pad.
33. (NEW) The method of claim 32, wherein said barrier layer is made of metals — selected from a group consisting of copper, tin, nickel, chromium, titanium, copper-chromium alloy, tin-lead alloy, and alloys thereof.
34. (NEW) A method of forming electroplated solder on an organic circuit board for making flip chip joints and board to board solder joints, comprising:
providing an organic circuit board including a surface bearing electrical circuitry that includes at least a contact pad, said contact pad being made of copper;
forming a solder mask layer on said surface, said solder mask being patterned to expose said contact pad;
directly forming a thin metal seed layer over said surface without performing any roughness processing to said contact pad, said seed layer being solely made of a first metal material which has good adhesion with copper;
forming a resist layer with at least one opening located at said contact pad that

is deposited over said seed layer;
forming a solder bump in said opening by electroplating; and
removing said resist layer and said seed layer beneath said resist layer.

35. (NEW) The method of claim 34, wherein said first metal material is selected from the group consisting of copper and tin.

36. (NEW) The method of claim 34, wherein, said solder bump containing at least said first metal material, said seed layer beneath solder bump is disappeared due to dissolve completely into said solder bump after a reflow process.

37. (NEW) The method of claim 34, wherein said seed layer is made of physical vapor deposition method.

38. (NEW) The method of claim 34, wherein said seed layer is made of chemical vapor deposition method.

39. (NEW) The method of claim 34, wherein said seed layer is made of electroless plating method.

40. (NEW) The method of claim 39, further comprising a step before forming said thin metal seed layer:
coating the surfaces of the solder mask and the contact pad with aqueous solutions which at least contains copper ions and then performing a reduction process of said copper ions to form a thin copper film on said surfaces, wherein there is no reduction of noble metal ions.

41. (NEW) The method of claim 40, wherein said noble metal is selected from a group consisting of palladium, gold and silver.

42. (NEW) The method of claim 34, further comprising a step before forming said

thin metal seed layer:
forming a barrier layer on said contact pad, said barrier layer is made of metals which have good adhesion with both copper and the seed layer.

43. (NEW) The method of claim 42, wherein said barrier layer is made of metals selected from a group consisting of copper, tin, nickel, chromium, titanium, copper-chromium alloy, tin-lead alloy, and alloys thereof.